Geophysical Research Abstracts
Vol. 13, EGU2011-7687, 2011
EGU General Assembly 2011

NO2 intercomparison at the EUPHORE simulation chambers during the FIONA campaign

Milagros Ródenas (1), Amalia Muñoz (1), Mónica Vázquez (1), Eva Clemente (1), Pavel Mikuška (2), Zbyněk Večeřa (2), Dean Venables (3), Jun Chen (3), Mark Daniels (4), and Stephen Ball (4)

(1) Instituto Universitario CEAM - UMH, Spain , (2) Institute of Analytical Chemistry AS CR –Brno, Czech Republic , (3) University College Cork, Ireland , (4) University of Leicester, UK

Nitrogen dioxide plays a vital role in atmospheric chemistry, with important implications for climate change and air quality. NO_2 is mainly emitted by combustion processes and by natural sources like lightning and soil, and plays a key part in the production of tropospheric ozone which is both a greenhouse gas and a component of poor air quality that is particularly harmful to biological systems. In addition, the reaction of NO_2 with OH forms nitric acid, one of the main components of acid rain.

This work reports results from experiments carried out during the FIONA (Formal Intercomparison of Observations of Nitrous Acid) campaign held at the EUPHORE simulation chambers in May 2010. Whilst the primary aim of the campaign was to compare HONO measurement methods, several of the instruments deployed at FIONA were also able to accurately quantify NO_2. Here we present a comparison of NO_2 datasets obtained by differential optical absorption spectroscopy (1 instrument), broadband cavity-enhanced absorption spectroscopy (2 instruments), a commercial NO-O_3 Chemiluminescence monitor and a NO_2 – luminol Chemiluminescence monitor.

A general description of the FIONA experiments is provided, and the NO_2 datasets are compared and examined for possible interferences based on the working principles of the instruments.